

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/JP2004/004745

International filing date (day/month/year)
31.03.2004

Priority date (day/month/year)
01.04.2003

International Patent Classification (IPC) or both national classification and IPC
H05B41/292

Applicant
MATSUSHITA ELECTRIC WORKS, LTD.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/004745

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/JP2004/004745

Box No. II Priority

1. ☒ The following document has not been furnished:

☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).

☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-25
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-25
Industrial applicability (IA)	Yes: Claims	1-25
	No: Claims	

2. Citations and explanations

see separate sheet

Re Item V.

1. The following document is referred to in this communication:

D1 = Patent abstracts of Japan, "Inverter device", vol. 0151, no. 59 & JP3030291

D2 = US6144172

D3 = US4904903

D4 = US6020691

2. The subject-matter of independent claim 1 does not involve an inventive step, Articles 33(3) PCT, in view of D1 and usual design practice.

D1 (abstract) discloses a ballast for a high intensity discharge lamp comprising a DC power supply (E), first and second switches (Q1;Q2), first and second capacitors (C3;C4) connected in parallel with said first and second switches, an inductor (L1), a high intensity discharge lamp (H) connected between said switches and said capacitors, a third capacitor (C1) connected in parallel with said lamp and a control circuit (implicitly disclosed for the operation of first and second switches). The subject-matter of claim 1 differs from the disclosure of D1 in that there is no explicit teaching in D1 that the voltages across the first and second capacitors, respectively, are selected to be different. However, unless the capacitors are perfectly matched, they will exhibit different voltages anyway. Moreover, merely sizing, dimensioning or selecting capacitor values in order to achieve desired voltage levels is part of usual circuit design procedure that would be performed by the skilled person without inventive skill. Hence, claim 1 is not inventive. It is noted that the D1 circuit (figure) is identical to that in figure 1 of the current application.

3. The features set out in claims 2-25 are either known from D1-D4 or relate to usual matters of design which are unable to lend inventive step to independent claim 1, Articles 33(3) PCT. In particular;

Claims 1-9: Merely setting component values, reference voltages, ratios and such like is usual design procedure.

Claims 10,11: PWM and varying frequency in order to avoid acoustic resonance are known from D2 (col. 3, line 10 - col. 8, line 59).

Claim 19: D3 (fig. 2; source 1; col. 8, line 33 - col. 9, line 18) discloses a DC power

supply comprising a rectifier for rectifying AC.

Claim 20: Continuous and discontinuous (boundary current mode) current modes at different stages of lamp operation are disclosed in D4 (col. 1, line 5 - col. 6, line 19; col. 10, line 48 - col. 13, line 16).

Claim 23: See points 2 and 4 of this opinion.

Claims 24,25: Minor circuit modifications are not inventive. D1 (figs. 11-16) and D4 (figs. 2,3,11,14a,14b) show circuit architectures comprising third and fourth switches, diodes and capacitors, in series and parallel configurations.

4. The application does not meet the requirements of Article 6 PCT, because claims 1 and 23 are not clear.

Claim 1: The term "a series connection including..." (line 10) is ambiguous since it is unclear, firstly, where the series connection is in the circuit, and secondly, what the inductor is in series with.

Claim 23: This claim sets out no additional feature(s) to those already set out in independent claim 1. Moreover, due to the lack of these additional features the scope of claim 23 is unclear.